

REPORT DOCUMENTATION PAGE					Form Approved OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 07/20/2017		2. REPORT TYPE Final Technical Report			3. DATES COVERED (From - To) 03/19/2014 to 03/31/2017	
4. TITLE AND SUBTITLE Ship Operations, Maintenance, Repair and Upgrade for the R/V KILO MOANA				5a. CONTRACT NUMBER		
				5b. GRANT NUMBER N00014-14-1-0320		
				5c. PROGRAM ELEMENT NUMBER		
6. AUTHOR(S) Shor, Alexander				5d. PROJECT NUMBER		
				5e. TASK NUMBER		
				5f. WORK UNIT NUMBER		
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) University of Hawai'i Office of Research Services 2440 Campus Road, Box 368 Honolulu, Hawai'i 96822-2234					8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Office of Naval Research 875 North Randolph Street Arlington, VA 22203-1995					10. SPONSOR/MONITOR'S ACRONYM(S)	
					11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Unlimited						
13. SUPPLEMENTARY NOTES						
14. ABSTRACT This award provided funds to operate, maintain, repair and upgrade the research vessel Kilo Moana, a ship owned by the federal government, operated by University of Hawaii under charter agreement with the Office of Naval Research.						
15. SUBJECT TERMS Research vessel, operation, maintenance, repair.						
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON	
a. REPORT	b. ABSTRACT	c. THIS PAGE			Alexander Shor	
U	U	U	UU	1	19b. TELEPHONE NUMBER (Include area code) 808-956-5749	


Final Technical Report
ONR Award N00014-14-1-0320
“2014-2016 Ship Operations, Maintenance, Repair and Upgrade
for the R/V KILO MOANA”
March 2014 – March 2017

Alexander Shor, Principal Investigator
University of Hawaii

University of Hawaii operates Research Vessel (R/V) Kilo Moana (AGOR 26), a SWATH vessel owned by the federal government and operated under Charter Party agreement N00014-13-L-0148 with the Office of Naval Research. The present award, N00014-14-1-0320 provided funds to operate, maintain and upgrade Kilo Moana during the 2014-2017 period. Specific accomplishments carried out during this 3-year period under the initial award and the subsequent seven increments included:

1. Planning and installation of a replacement for the vessel’s computerized control system. The control system on R/V Kilo Moana that was installed during construction of the ship (2001-2002) had pervasive and unpredictable problems that caused intermittent blackouts and propulsion failures, and necessitated progressive deactivation of the central control system’s automated features by ship’s engineers. Following many efforts to correct specific issues, a proposal was submitted to ONR and we were encouraged to pursue replacing the original system beginning in 2014. This proposal provided the support for that purpose. The design was completed in 2014-15, and the installation took place during two periods, one in early 2016, and the final work in early 2017. The project was successfully completed, and Kilo Moana has returned to normal operations.
2. Various repairs were supported under this funding, including work on the ship’s tail shaft and rudders, and replacement and repair of electronics in the original vessel control system to ensure continued operational status while the new control system was being designed.
3. Vessel operations in support of Navy-funded research missions were carried out as part of the research mission of the vessel. Operating costs are paid by the federal or state agency that funds the research, and during the period of this award most of the research carried out on Kilo Moana was funded by the National Science Foundation, which paid for that time through a separate cooperative agreement. Those projects funded by ONR for which ship operations were paid under this award were principally for researchers at Johns Hopkins University, involving support from Code 32 (ASW), and coordinated with other Navy assets from Pearl Harbor.

University of Hawaii continues to operate R/V Kilo Moana under successor award N00014-17-1-2267, also to PI Alexander Shor, received in April, 2017.

REPORT OF INVENTIONS AND SUBCONTRACTS <i>(Pursuant to "Patent Rights" Contract Clause) (See Instructions on back)</i>						<small>Form Approved OMB No. 9000-0095 Expires Jan 31, 2008</small>	
<small>The public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Services Directorate (9000-0095). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.</small>							
PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE ABOVE ORGANIZATION. RETURN COMPLETED FORM TO THE CONTRACTING OFFICER.							
1.a. NAME OF CONTRACTOR/SUBCONTRACTOR		c. CONTRACT NUMBER		2.a. NAME OF GOVERNMENT PRIME CONTRACTOR		c. CONTRACT NUMBER	
University of Hawaii		N00014-14-1-0320					
b. ADDRESS (Include ZIP Code)		d. AWARD DATE (YYYYMMDD)		b. ADDRESS (Include ZIP Code)		d. AWARD DATE (YYYYMMDD)	
Office of Research Services, 2440 Campus Road, Box 368, Honolulu, HI 96822-2234		20140319					
3. TYPE OF REPORT (X one)							
a. INTERIM <input type="checkbox"/> b. FINAL <input checked="" type="checkbox"/>							
4. REPORTING PERIOD (YYYYMMDD)							
a. FROM 20140319							
b. TO 20170331							
SECTION I - SUBJECT INVENTIONS							
5. "SUBJECT INVENTIONS" REQUIRED TO BE REPORTED BY CONTRACTOR/SUBCONTRACTOR (If "None," so state)							
NAME(S) OF INVENTOR(S) <small>(Last, First, Middle Initial)</small>		TITLE OF INVENTION(S)		DISCLOSURE NUMBER, PATENT APPLICATION SERIAL NUMBER OR PATENT NUMBER		ELECTION TO FILE PATENT APPLICATIONS (X)	
a.		b.		c.		d.	
		NONE				(1) UNITED STATES (2) FOREIGN (a) YES (b) NO (a) YES (b) NO	
f. EMPLOYER OF INVENTOR(S) NOT EMPLOYED BY CONTRACTOR/SUBCONTRACTOR				g. ELECTED FOREIGN COUNTRIES IN WHICH A PATENT APPLICATION WILL BE FILED			
(1) (a) NAME OF INVENTOR (Last, First, Middle Initial)		(2) (a) NAME OF INVENTOR (Last, First, Middle Initial)		(1) TITLE OF INVENTION		(2) FOREIGN COUNTRIES OF PATENT APPLICATION	
(b) NAME OF EMPLOYER		(b) NAME OF EMPLOYER		None			
(c) ADDRESS OF EMPLOYER (Include ZIP Code)		(c) ADDRESS OF EMPLOYER (Include ZIP Code)					
SECTION II - SUBCONTRACTS (Containing a "Patent Rights" clause)							
6. SUBCONTRACTS AWARDED BY CONTRACTOR/SUBCONTRACTOR (If "None," so state)							
NAME OF SUBCONTRACTOR(S)		ADDRESS (Include ZIP Code)		SUBCONTRACT NUMBER(S)		FAR "PATENT RIGHTS"	
a.		b.		c.		d.	
						(1) CLAUSE NUMBER (2) DATE (YYYYMM)	
NONE						DESCRIPTION OF WORK TO BE PERFORMED UNDER SUBCONTRACT(S) e.	
SUBCONTRACT DATES (YYYYMMDD)							
f.							
(1) AWARD (2) ESTIMATED COMPLETION							
SECTION III - CERTIFICATION							
7. CERTIFICATION OF REPORT BY CONTRACTOR/SUBCONTRACTOR (Not required if: (X as appropriate))							
				SMALL BUSINESS or		NONPROFIT ORGANIZATION	
I certify that the reporting party has procedures for prompt identification and timely disclosure of "Subject Inventions," that such procedures have been followed and that all "Subject Inventions" have been reported.							
a. NAME OF AUTHORIZED CONTRACTOR/SUBCONTRACTOR OFFICIAL (Last, First, Middle Initial)		b. TITLE			c. SIGNATURE		d. DATE SIGNED
Koza, Kyle		Contracts & Grants Specialist					20170721